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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/945,321	08/31/2001	Dirk Gohlke	13692.2US01	1332

7590 10/15/2003
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EXAMINER

WALLS, DIONNE A

ART UNIT	PAPER NUMBER
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1731

DATE MAILED: 10/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/945,321

Applicant(s)

GOHLKE ET AL.

Examiner

Dionne A. Walls

Art Unit

1731

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-14 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 5-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Art in view of Tharp (US. Pat. No. 4,842,732).

Applicant admits, in the instant specification, that a device is known for use in expelling gas components from molten glass, in a purification process that follows a glass melting process, which comprises a bubbling dispenser for generating bubbles from an external gas source and introducing said bubbles into the molten mass. Used as bubbling gases, typically, are air or oxygen (see instant specification pages 1 and 2). Obviously a pressurized-gas source is arranged to the bubble dispenser in order to supply said dispenser with said gas. Applicant also admits that a very effective material exchange between molten material and bubbles are achieved through a large specific surface area, which means very small bubbles. While Applicant may not admit that the known bubble dispenser comprises a porous body with open pores having an average diameter of less than .5 mm, or less than 100 microns, Tharp discloses, in its "Background of Invention" section, a general teaching of a particular type of fine bubble aeration/dispersing means which is well-known. The references states that porous diffuser plates of ceramic or sintered metal through which compressed air is forced

provides for effective aeration that is achieved due to the relatively large areas of surface contact between the small air bubbles and the liquid. Further, it states that the diffuser plate aerator is generally more efficient in oxygen transfer than other types of aerators that are used (see col. 1, lines 51-64). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to utilize, in place of the conventional bubbling jets, the porous metal diffusers of the type disclosed in the "Background" section of Tharp because of the mentioned benefits that those type of gas dispensers have in the aeration of fine bubbles. And while Tharp may not specifically articulate the particular size of the "pores" in said diffuser plate, one of ordinary skill would have arrived at the claimed pore sizes, after routine experimentation, in an effort to optimize the device so as to provide the necessary "fine" bubbles for effective aeration.

Regarding claim 6, since the diffuser plate of the reference is "porous", it obviously has some type of lattice, mesh, grid or grating structure.

Regarding claims 8 and 10, while there may be no articulation that the porous body consists of the exact claimed materials, Tharp does disclose that either ceramic or sintered metal material is known for use in porous diffuser plates. It would have been obvious to one having ordinary skill in the art at the time of the invention to have utilized the claimed ceramic or metal material since these substances are known for the wear-resistance and durability.

Regarding claim 11, as with any material, the porous diffuser plate of the combined references is "capable of" being electrically heated.

Regarding claim 14, while the Applicant may not admit the use of helium as the bubbling gas, it would have been obvious to one having ordinary skill in the art at the time of the invention to use this gas, since it, like oxygen, is an inert gas and would be a obvious choice in bubble aeration and purification.

Allowable Subject Matter

3. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- JP 6-33134

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dionne A. Walls whose telephone number is (703) 305-0933. The examiner can normally be reached on Mon-Fri, 7AM - 4:30PM (Every other Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P. Griffin can be reached on (703) 308-1164. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-

0661.

A handwritten signature in black ink, appearing to read "Dionne A. Walls". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Dionne A. Walls

September 30, 2003